

What Is Claimed Is:

1 1. A transflective liquid crystal display device
2 implementing a color filter having various thicknesses,
3 comprising:
4 a lower substrate having an insulating layer thereon;
5 a lower electrode formed on the insulating layer, wherein
6 the lower electrode has a transmissive portion and
7 a reflective portion;
8 an upper substrate opposing the lower substrate, wherein
9 a side of the upper substrate has a color filter
10 having a first thickness portion and a second
11 thickness portion, the first thickness portion is
12 thicker than the second thickness portion, and the
13 first thickness portion corresponds to the
14 transmissive portion and the second thickness
15 portion corresponds to the reflective portion;
16 a planarization layer formed on the color filter, wherein
17 the planarization layer is opposite to the lower
18 substrate;
19 an upper electrode formed on the planarization layer; and
20 a liquid crystal layer interposed between the upper
21 substrate and the lower substrate.

1 2. The transflective LCD device according to claim 1,
2 the upper substrate having a first region and a second region
3 thereon, wherein the color filter comprises:
4 a thick color resist layer formed on the upper substrate;
5 and

6 a thin color resist layer formed on the upper substrate
7 in the second region, wherein the thin color resist
8 is formed by removing part of the thick color resist
9 layer in the second region.

1 3. The transflective LCD device according to claim 1,
2 wherein the planarization layer is an organic or inorganic
3 insulating layer.

1 4. The transflective LCD device according to claim 2,
2 wherein the thick color resist layer comprises positive or
3 negative photoresist.

1 5. The transflective LCD device according to claim 4,
2 wherein the thick color resist layer comprises the positive
3 photoresist, further comprising:

4 an exposure light and a photomask for performing a
5 photolithography procedure on the thick color
6 resist layer to remove part of the thick color resist
7 layer in the second region;

8 wherein the photomask comprises:

9 a first pattern for shading the first region from the
10 exposure light; and

11 a second pattern for decreasing an intensity of the
12 exposure light penetrating the second pattern,
13 corresponding to the second region.

1 6. The transflective LCD device according to claim 5,
2 wherein the second pattern is a half-tone pattern.

1 7. The transflective LCD device according to claim 6,
2 wherein the second pattern comprises a plurality of micro
3 patterns.

1 8. The transflective LCD device according to claim 4,
2 wherein the thick color resist layer comprises the negative
3 photoresist, further comprising:

4 an exposure light and a photomask for performing a
5 photolithography procedure on the thick color
6 resist layer to remove part of the thick color resist
7 layer in the second region;

8 wherein the photomask comprises:

9 a first pattern for transmitting the exposure light to the
10 first region; and

11 a second pattern for decreasing an intensity of the
12 exposure light penetrating the second pattern,
13 corresponding to the second region.

1 9. The transflective LCD device according to claim 8,
2 wherein the second pattern is a half-tone pattern.

1 10. The transflective LCD device according to claim 9,
2 wherein the second pattern comprises a plurality of micro
3 patterns.

1 11. A transflective liquid crystal display device
2 implementing a color filter having various thicknesses,
3 comprising:

4 a lower substrate having an insulating layer thereon;

5 a lower electrode formed on the insulating layer, wherein
6 the lower electrode has a transmissive portion and
7 a reflective portion;
8 a color filter having various thicknesses formed on the
9 lower electrode, wherein the color filter has a
10 first thickness portion and a second thickness
11 portion, the first thickness portion is thicker than
12 the second thickness portion, and the first
13 thickness portion corresponds to the transmissive
14 portion and the second thickness portion
15 corresponds to the reflective portion;
16 a planarization layer formed on the color filter;
17 an upper substrate opposing the lower substrate;
18 an upper electrode formed on the upper substrate; and
19 a liquid crystal layer interposed between the upper
20 substrate and the lower substrate.

1 12. The transflective LCD device according to claim 11,
2 the lower electrode having a first region and a second region
3 thereon, wherein the color filter comprises:

4 a thick color resist layer formed on the lower electrode;
5 and

6 a thin color resist layer formed on the lower electrode
7 in the second region, wherein the thin color resist
8 layer is formed by removing part of the thick color
9 resist layer in the second region.

1 13. The transflective LCD device according to claim 11,
2 wherein the planarization layer is an organic or inorganic
3 insulating layer.

1 14. The transflective LCD device according to claim 12,
2 wherein the thick color resist layer comprises positive or
3 negative photoresist.

1 15. The transflective LCD device according to claim 14,
2 wherein the thick color resist layer comprises the positive
3 photoresist, further comprising:

4 an exposure light and a photomask for performing a
5 photolithography procedure on the thick color
6 resist layer to remove part of the thick color resist
7 layer in the second region;

8 wherein the photomask comprises:

9 a first pattern for shading the first region from the
10 exposure light; and

11 a second pattern for decreasing an intensity of the
12 exposure light penetrating the second pattern,
13 corresponding to the second region.

1 16. The transflective LCD device according to claim 15,
2 wherein the second pattern is a half-tone pattern.

1 17. The transflective LCD device according to claim 16,
2 wherein the second pattern comprises a plurality of micro
3 patterns.

1 18. The transflective LCD device according to claim 14,
2 wherein the thick color resist layer comprises the negative
3 photoresist, further comprising:

4 an exposure light and a photomask for performing a
5 photolithography procedure on the thick color

6 resist layer to remove part of the thick color resist
7 layer in the second region;
8 wherein the photomask comprises:
9 a first pattern for transmitting the exposure light to the
10 first region; and
11 a second pattern for decreasing an intensity of the
12 exposure light penetrating the second pattern,
13 corresponding to the second region.

1 19. The transflective LCD device according to claim 18,
2 wherein the second pattern is a half-tone pattern.

1 20. The transflective LCD device according to claim 19,
2 wherein the second pattern comprises a plurality of micro
3 patterns.

1 21. A method of forming a color filter having various
2 thicknesses, comprising the steps of:
3 providing a substrate having a first region and a second
4 region thereon;
5 forming a thick color resist layer on the substrate,
6 wherein the thick color resist layer comprises
7 positive photoresist;
8 performing a photolithography procedure using an exposure
9 light and a photomask on the thick color resist layer
10 to remove part of the thick color resist layer in
11 the second region, and thus form a thin color resist
12 layer on the substrate in the second region, wherein
13 the photomask comprises:
14 a first pattern for shading the first region from the
15 exposure light; and

16 a second pattern for decreasing an intensity of the
17 exposure light penetrating the second pattern,
18 corresponding to the second region; and
19 forming a planarization layer to cover the thick and thin
20 color resist layers.

1 22. The method according to claim 21, wherein the second
2 pattern is a half-tone pattern.

1 23. The method according to claim 22, wherein the second
2 pattern comprises a plurality of micro patterns.

1 24. The method according to claim 21, wherein the first
2 region corresponds to a transmissive region of a transflective
3 LCD device and the second region corresponds to a reflective
4 region of the transflective LCD device.

1 25. A method of forming a color filter having various
2 thicknesses, comprising the steps of:
3 providing a substrate having a first region and a second
4 region thereon;
5 forming a thick color resist layer on the substrate,
6 wherein the thick color resist layer comprises
7 negative photoresist;
8 performing a photolithography procedure using an exposure
9 light and a photomask on the thick color resist layer
10 to remove part of the thick color resist layer in
11 the second region, and thus form a thin color resist
12 layer on the substrate in the second region, wherein
13 the photomask comprises:
14 a first pattern for transmitting the exposure light
15 to the first region; and

16 a second pattern for decreasing an intensity of the
17 exposure light penetrating the second pattern,
18 corresponding to the second region; and
19 forming a planarization layer to cover the thick and thin
20 color resist layers.

1 26. The method according to claim 25, wherein the second
2 pattern is a half-tone pattern.

1 27. The method according to claim 26, wherein the second
2 pattern comprises a plurality of micro patterns.

1 28. The method according to claim 25, wherein the first
2 region corresponds to a transmissive region of a transflective
3 LCD device and the second region corresponds to a reflective
4 region of the transflective LCD device.